WxS Ext-049

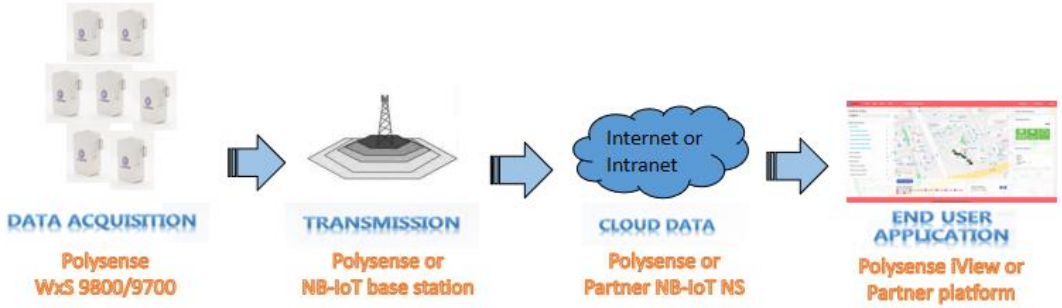
Wind Sensor

Product Highlights

- ✓ Wind Sensor
- ✓ Measuring range:0 ~ 360 °,
  Accuracy :±1 °
- ✓ Eight directions
- ✓ Dynamic response speed 0.5s
- ✓ Work environment - 20 ℃ ~ 60 ℃,
  0% RH to 80% RH
- ✓ Low power consumption, equipment power supply 3.3v
- ✓ RS485 (Modbus) communication protocol
- ✓ Small size, easy to carry, simple installation, beautiful appearance
- ✓ Strong corrosion resistance and weather resistance
- ✓ Low power consumption, strong anti-interference ability, long-term stable work
- ✓ Wide range of power supply, good linearity of data information, long signal transmission distance
- ✓ Edge calculation and cloud data processing and analysis
- ✓ Deployed in a cellular topology, Support service providers, the municipal governments and the enterprises to deploy public and private IOT networks
- ✓ The sensitivity of NB-IoT module is 129 dBm±1 dB, excellent penetration, the network coverage is 20dB stronger than GSM, LTE and other networks.
- ✓ Support the communication protocol frequency band published by the international organization agreement 3GPP.
- ✓ Support two kinds of configuration for data transmission.Single-tone transmission,15kHz/3.75kHz Subcarrier interval:25.2kbps(Downlink) , 15.625kbps(Uplink);Multi-tone transmission, 15kHz Subcarrier interval:25.2kbps(Downlink),54kbps(Uplink)
- ✓ Switch freely between Active/Idle/PSM modes, and ensure that the un-received data is retransmitted.
- ✓ Support IPv4/IPv6/UDP/CoAP/LwM2M/Non-IP/DTLS/TCP/MQTT protocol stack.

- ✓ Intelligent terminal provides multi-function interface (MPI), it can be connected with external analog and digital quantity sensors. (RS232/RS485 interface is optional.)
- ✓ Integrated internal antenna or optional external SMA/IPEX antenna.
- ✓ OTA (Over The Air) firmware upgrade, including to upgrade loader and application images
- ✓ Support wide voltage 5~12V DC input, 5-10 years of battery operational life with 2 x AA Li-SOCI2 Battery.
- ✓ IP67 enclosure rating.

Application Architecture

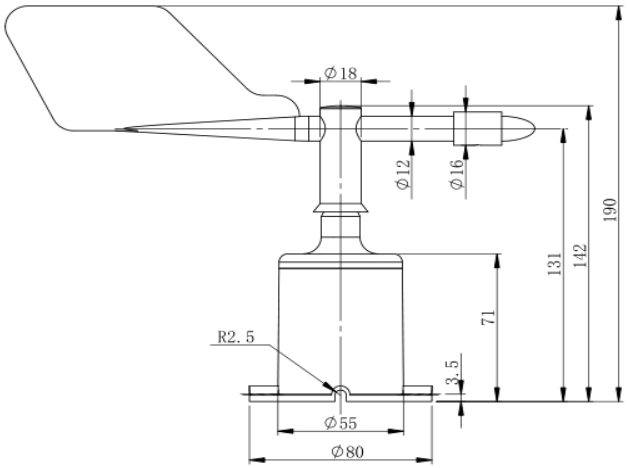


Specifications

Parameter	Value	
Sensor		
Wind Sensor	Equipment power supply: 3.3v Maximum power:1.2w Measuring range :0 ° ~ 360 ° Indication direction:Eight directions Working temperature and humidity :- 20 ℃ ~ 60 ℃;O % RH to 80% RH Protocol : RS485 (Modbus protocol) Output signal: 4~20mA (current output);0-5 v / 0-10 v(output voltage) Load capacity: ≤25Ω (voltage output)；≤600Ω (output current)	
Operating Mode	Active	The terminal is active, all functions are available and data can be sent and received. In this mode, the terminal can switch to Idle mode or PSM mode.
	Idle	The terminal is in the state of light sleep and the network is

		connected. Paging messages are accepted and the terminal can switch to Active mode or PSM mode in this mode.
	PSM	Only the RTC is working, the network is disconnected, and paging messages are not acceptable. When DTE (Data Terminal Equipment) actively sends Data or the timer T3412 (associated with periodic updates) times out, the terminal is awakened.
MPI	Analog input 0 - 3/5/10V:4-20mA;Digital interface:RS232/RS485/UART	
Upgrade	The serial port or DFOTA	
Data report	For any of the above sensor types, support for cross-threshold data reporting and periodic data reporting every 2 hours (both threshold and periodic reporting cycles can be configured by the user)	
Wireless		
Sensitivity	- 129dBm±1dB	
Frequency band	B1 @H-FDD: 2100MHz B3 @H-FDD: 1800MHz B8 @H-FDD: 900MHz B5 @H-FDD: 850MHz B20 @H-FDD: 800MHz B28 @H-FDD: 700MHz	
Protocol	IPv4 / IPv6 IP/UDP/CoAP/LwM2M/Non-IP/ DTLS/TCP/MQTT	
Distance	NLOS（Non-line-of-sight） 2km;	
Antenna	Integrated internal antenna or external IPEX antenna (SMA)	
Mechanical		
Dimension	114mm x 80mm x38mm The overall height increases with the increase of sensors.	
Shell IP rating	IP67	
Operating Temperature	-40℃to +85℃	
Storage Temperature	-40℃ to +90℃	
Total Weight	150g	
Electrical		
Supply Voltage	Low power consumption, 3.1V~3.66V; 1or2 Li-SOCI2 Battery; 5VDC optional.	

Product size

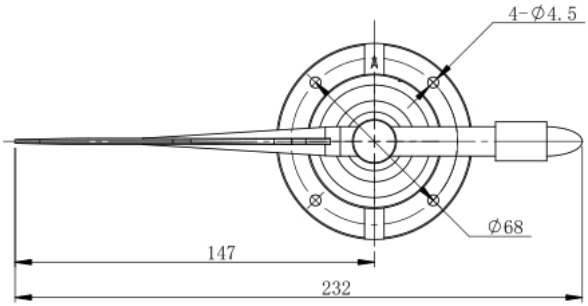


Overall height: 190mm

Spindle height: 144mm

Base height: 71mm

Base diameter: 80mm



Installation aperture: 4.5mm

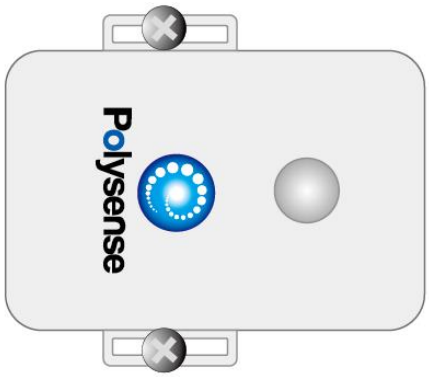
Distribution diameter: 68mm

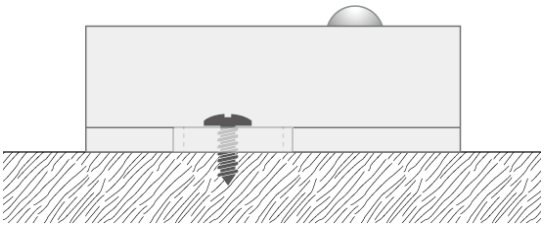
RS485's mode of connection

	Line color	Explain
Power	Brown	Positive
	Black	Negative
Output	Blue	Wind signal positive
	Green	Wind signal negative

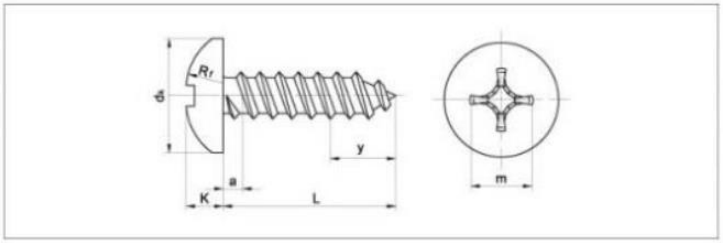
Installation Guide

Below diagram shows the general installation guide for WxS9800, it can be installed on any flat and solid surface, the lid is contacted with the surface and fixed via 2 self-tapping screws:





Below is the recommendation of the self-tapping screw and its sizes:



螺纹规格		ST2.2	ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3
dk	min	3.7	5.3	6.64	7.64	9.14	10.57	11.57
K	min	1.4	2.15	2.35	2.8	3.4	3.7	4.3
m		1.9	3	3.9	4.4	4.9	6.4	6.9
L		4.5mm–100mm						

The Sample Application

The wind direction sensor can trace the source of the wind, using the mechanical structure of the vane. When the wind blows to the tail of the vane, the arrow of the vane will point to the direction from which the wind blows.

- Environmental monitoring

- **Field environment monitoring**

- **Agrometeorological monitoring**

About Polysense

Polysense Technologies Inc., Located in Santa Clara, California, with offices in St. Paul, Brazil, Beijing, Luo Yang ,Shanghai and Guangzhou, China, develops Universal Sensing and communicating Solutions with Distributed Data Analytic for IoT.

Polysense focuses on fiber and wireless IoT products, solutions, and engineering services for service providers, enterprises, government agencies, and consumers, including 3G/4G LTE based WxS 6x00, Wi-Fi/BLE based WxS 7x00, LoRa based WxS 8x00, and NB-IoT/eMTC based WxS 9x00, enabling a rich array of applications such as Smart City, Industrial Internet of Things, Smart Retail and SMB, Precision Agriculture, Water Treatment, Environmental Protection, Energy and Power. Polysense currently supports over 100 sensing parameter, iEdge edge computing turnkey software,iView data visualization cloud PaaS platform, and iServer scalable Network Server, with a goal to offer the industry's broadest portfolio of sensors over 140 sensing parameters, including temperature, humidity, light, pressure, acoustic, accelerometer, tilt, vibration, displacement, environmental and industrial gases, water quality, PIR/IR motion, ultrasonic, soil sensors, thermal imaging, and 18 types gases with flammable, explosive, poisonous, or bad odor attributes.

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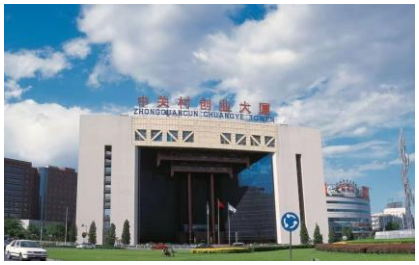

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